

## NOTES AND COMMENTS

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### **SURFACE WAVE COMMUNICATION IN WATER STRIDERS; FIELD OBSERVATIONS OF UNREPORTED TAXA (HETEROPTERA: GERRIDAE, VELIIDAE)**

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Surface wave communication has been reported in water striders (Gerridae), backswimmers (Notonectidae), giant water bugs (Belostomatidae), spiders and frogs (see recent summary by Kraus, 1989). Among the water striders this form of communication has been noticed only in the family Gerridae, in *Gerris* (2 spp.), *Limnoporus* (3 spp.) and *Rhagadotarsus* (1 sp). During a recent expedition to South America, funded by the National Geographic Society, I observed two additional water striders creating surface waves, apparently in exactly the same manner as *Rhagadotarsus kraepelini* Breddin which Dan. A. Polhemus and I observed and photographed on Luzon in 1985. The surface waves are created by a stationary insect vibrating in a vertical plane to produce concentric circular surface waves (see Wilcox, 1972). The taxa observed were a tiny trepobatine species (Gerridae; Trepobatinae), 2.5–3.2 mm in length, and *Microvelia longipes* Uhler (Veliidae; Microveliinae), the first records of such behavior for either a veliid or a member of the gerrid subfamily Trepobatinae. It is tempting to speculate that many other insects associated with the water surface also communicate in this way but have not been noticed.

The gerrid (a new genus and new species close to *Telmatometra*, to be described in another publication) was in the middle of a small quiet forest pool inhabited by a number of other conspecific water striders (INPA Forest Management Station, Coll. Loc. 2477, 29-VIII-1989, 98 km NW of Manaus, Brazil). This species was found only on quiet pools associated with small headwater streams in a seasonally dry rain forest, either connected with the stream or nearby in the forest. These tiny insects resemble early instar nymphs of the gerrid genus *Brachymetra* that inhabit the same pools, which may be why they have previously been overlooked. The observation was fortuitous because the forest beneath the canopy is quite dark, and only by chance the proper oblique light was available to clearly see the surface waves and the insect creating them for a period of about 30 seconds.

Many male specimens of *Microvelia longipes* were observed on several occasions creating surface waves in the concrete lined pools of the Caiman holding pens on the main INPA facility in Manaus during late August, 1989. The males were separated from each other by approximately 6 inches or more, and each would vibrate for 15 to 30 seconds, then cease for a time. At any given time a number of males could be seen vibrating at once. In one instance two males were seen grappling after one had been vibrating, suggesting that the surface waves are repelling signals to ward off intruding males. Whether signalling is also intended to attract females for mating would be an interesting area for investigation (see Wilcox, loc. cit.). Because *Mi-*

*crovelia longipes* is perhaps the commonest water strider in South America and readily colonizes temporary pools as well as almost every pond, it should be very easy to raise and study in either the laboratory or outdoor tanks. The great variability of leg lengths in males of this species has long been a puzzle; leg length will mechanically affect the frequency of vibration, thus possibly conferring a "signature" on each male. A test of this working hypothesis should be a fruitful area for study.—John T. Polhemus, University of Colorado Museum, 3115 S. York, Englewood, Colorado 80110.

#### LITERATURE CITED

- Kraus, W. F. 1989. Surface wave communication during courtship in the giant water bug, *Abedus indentatus* (Heteroptera: Belostomatidae). J. Kansas Entomol. Soc. 62:316–328.  
 Wilcox, R. S. 1972. Communication by surface waves. Mating behavior of a water strider (Gerridae). J. Comp. Physiol. 80:255–266.

#### ERRATA

Corrections to: Kerzhner, I. M. 1990. Neotropical Nabidae (Heteroptera), 3: species of the genus *Arachnocoris* from Costa Rica. J. New York Entomol. Soc. 98(2):133–138.

p. 134, line 12, should read: *Diagnosis*. Related to *A. berytoides* (Uhler) (Grenada) which differs in its. . . .

p. 134, line 23, should read: . . . Distance between ocelli 2. . . .

Correction to: Futuyma, D. J. 1990. Observations on the taxonomy and natural history of *Ophraella* Wilcox (Coleoptera: Chrysomelidae), with a description of a new species. J. New York Entomol. Soc. 98(2):163–186.

p. 170, line 24, should read *Ophraella artemisiae*, new species. The original spelling is incorrect, as it is based on an inadvertent error.